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ABSTRACT

This study examined the Model Education Center (MEC) Professional Development School (PDS), formed by San Diego State University and a nearby school district in 1984. The study investigated whether core beliefs embedded in the PDS had a lasting effect on the teachers it graduated. Participants included teachers at three target schools; teachers who had received their degrees at the MEC and who were teaching at one of the three schools; principals at the three sites; and university educators. Teachers completed surveys of their attitudes and beliefs about four constructs: collaboration, reflective thinking, risk taking, and continuous learning. From their answers, researchers formulated interview protocols for focus group interviews. Participants provided written responses to focus group questions prior to discussion. Principals completed individual interviews. University educators completed questionnaires. Results indicated that 15 years later, core beliefs were still reflected in the school climates of the public schools. Principals indicated a commitment to the four constructs. MEC graduates also showed evidence of these core beliefs. Teachers demonstrated a commitment to building their professional knowledge and skills. Collaboration, professional growth, academic rigor, and safety were the primary factors within the three MEC school environments. (Contains 15 references.) (SM)

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Can a Professional Development School Have a Lasting Impact on Teachers' Beliefs and Practices?

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Professional development schools have become an important part of the educational reform movement of the last two decades. These schools, which embrace many organizational structures, have been formed primarily to enhance learning, promote the professional growth of preservice teachers, encourage inquiry and research and induct novices into the teaching profession (Holmes Group, 1990).

While the organizational structures of professional development schools may differ across the country, the literature reveals that some general common characteristics can be observed (Benton and Richardson, 1993; Abdal-Haqq, 1998). The major focus of most PDS programs is to alter preservice programs in shaping the professional development of neophyte teachers. There appears to be an agreed upon assumption that improvement in practice will occur from activity generated by those practicing in the field and therefore the practice should occur at a school site. It is also common to find professional development schools serving as support systems for the experienced teachers at the professional development sites.

Collaboration is the keystone of the professional development model (Lieberman., 1995). For example, partnerships that are formed between universities and schools provide opportunities for redesigning roles and responsibilities and for fashioning new ways of shaping teacher professional growth. Both teachers and university faculty are resources for information. Both share the responsibility for improving schools and preparing future teachers. These collaborations are based on mutual trust, willingness to communicate, flexibility, and a dedication to renewal and regeneration in the pursuit of excellence in teaching. Collaboration in

the professional development school is also the means by which teachers are encouraged to shift from old traditions to new ones; from differentiated expectations to the belief that all students can learn; and from isolation to cooperation. Collaboration between universities and schools is both enriching and challenging because it "seeks to reshape fundamental values, beliefs and paradigms for schools and school change while negotiating two worlds and inventing new programs" (Darling-Hammond, 1994, p 137). The intent of these new programs is to challenge beliefs about teaching and learning so that changes in practice may occur. In professional development settings teachers and teacher educators examine, implement and re-examine a variety of educational practices. In this milieu, as individuals try different instructional models, beliefs about learning and learners are brought into question and what constitutes good practice is examined from many different angles

The picture painted by this background suggests that professional development schools alter the organizational structures of what has been, redefine relationships and modify the practices of the participating members. While studies have focused on the impact of a PDS on the participants (see, for example, Grisham, et al, 1999), little information exists about the belief systems of program graduates as they move into the classroom. It is the purpose of this study to investigate whether the core beliefs that form the frame of reference for a professional development school are reflected in the graduates of that school and whether the presence of that belief system is sustained over time. Specifically, this study examines evidence of (1) reflective thinking (2) risk taking (3) collaboration and (4) continuous learning in teachers who graduated from a PDS called the Model Education Center (MEC).

The Model Education Center is a professional development school formed in 1984 by San Diego State University and the Cajon Valley School District initially for the purpose of

developing a field-based training center focusing on the preparation of new teachers. This collaboration resulted from a year of planning for the implementation of change and the careful addressing of the educational needs of each of the partners. The university sought to create an exemplary field setting where effective teaching strategies would be modeled for preservice teachers as well as for veterans. The district wanted to develop a center where the focal point would be a commitment to on-going innovation in curriculum and instruction. Goals were collaboratively formed around the constructs of (1) collaboration (2) reflective thinking (3) risk taking and (4) continuous learning to make the Center both learner centered and learning centered. To the MEC partners, these core beliefs were grounded in the literature that defined their meaning and guided their development into informed practice.

Most educators agree that neither schools nor universities alone can accomplish the goals of professional development schools (Hall, 1993; Lieberman & Miller, 1990; Ruchcamp & Roehler, 1992). Working together in collaborative groups, school and university faculty encourage one another to rethink and redesign currently accepted roles and responsibilities and to fashion new partnerships. Morris and Nunnery (1996) found that teachers who engaged in professional development school activity became more willing to share and work with their peers to improve the teaching and learning process. Hall (1993) found, after observing and interviewing teachers and principals, that collaborative partners are concerned with concepts of reflection, cooperative relationships and equity.

The importance of reflective thinking in teaching has long been noted. Dewey (1933) believed that such reflection involved open-mindedness, responsibility and wholeheartedness. In the early 1980's Schon distinguishes between reflection-in-action and reflection-on-action, and discusses the importance of framing and reframing problems for greater insight. Numerous

educators have used Schon's ideas as catalysts for further exploration into the purposes and processes of reflective thinking in teaching (Britzman, 1991; Calderhead, 1989; Connelly & Clandinin, 1988; Cruickshank, 1987; Darling-Hammond, 1994; Valli, 1993). Of great interest is the work of Osterman and Kottkamp (1993) who point out the interdependent relationships among reflection and risk-taking, collaboration and continuous learning.

Risk taking has been highlighted as an essential ingredient for successful teacher learning and growth (Darling-Hammond & McLaughlin, 1996). Fullan and Miles (1992) suggest that change without uncertainty or difficulty is superficial or trivial. Consequently, teachers need to be willing to take risks in order to enter that environment of uncertainty. In short, substantial teacher learning must, almost by definition, involve risk taking across a variety of contexts (Cohen and Barnes, 1993; Fullan, 1995).

While teaching has been characterized as the "learning profession" (Darling-Hammond & Sykes, 1999), the intellectual nature of teaching has traditionally been disparaged. Recently, researchers have focused on the impact of the "community of learners" in which the teacher finds him or herself (Ball &Cohen, 1999; Lord, 1994) and on a "culture of learning" in which the teacher is a continuous learner and more knowledgeable other (Vygotsky, 1978). Teachers are expected to acquire a deep knowledge base which must be continuously expanded through professional development (Hawley & Valli, 1999) and, in an era of educational accountability, they are also expected to possess pedagogical content knowledge (Shulman, 1987) and to know how to "situate" that knowledge in varying classroom contexts. The notion of continuous learning, then is essential to the development of teachers who positively impact the learning of their students (Lampert & Ball, 1999).

The literature on collaboration, reflective thinking, risk taking, and continuous learning strongly suggests that these characteristics are core to the development of a capable classroom professional. These are also the constructs that have formed the bedrock of the MEC partnership. Is there evidence that these beliefs and behaviors can have a long-lasting influence on the graduates of this professional development school? Longitudinal data on the impact of professional development schools' frames of reference are sparse. As we look to creating effective models for the preparation of new teachers it is vital that we examine existing structures beyond their immediate environs and gather data that will help inform our decision making.

Methods and Data Sources

Setting

The Model Education Center Professional Development School has been in existence for over fifteen years. Of the 450 teachers prepared under its auspices, 38 were identified as MEC graduates teaching at three schools in the district, and of those identified, 34 participated in the study.

Research Team

Four professors from San Diego State University, each of whom was involved in teaching at the Model Education Center, planned the study around the research question, "Do the core beliefs that provide the frame of reference for a Professional Development School have a lasting effect on the teachers it graduates?" The research team met initially in early 1998 to design the study and have continued to meet for two years to collaborate during data collection, data analysis, and writing of the research report.

Participants

The first set of participants in the study consisted of teachers teaching at three target schools. Each of these schools has been an active partner in the MEC. Eighty-one teachers completed an initial survey.

The second set of participants was a subset of the first, and included only teachers who had received their teacher preparation at the MEC and who were teaching at one of the three schools. These teachers participated in focus group interviews (N = 34). Across the focus groups, teachers' years of experience ranged from 1 to 15 years. We wanted to investigate whether there were any differences between teachers who had been teaching from 0-5 years, 6-10 years, and 11-15 years.

Researchers interviewed principals at the three sites.

University teacher educators involved at the MEC completed a questionnaire about their involvement in the professional development school.

Data Collection

Data were collected from multiple sources during this study. All data were collected during the 1998-99 academic year.

Researchers initially surveyed all teachers at the three target schools (See Appendix A). The instrument was designed to survey teachers' attitudes and beliefs about four essential constructs: (1) collaboration (2) reflective thinking (3) risk taking and (4) continuous learning. Eighty-one teachers from three target schools responded to the initial survey, as shown in Table 1.

Table 1. Demographic Information

	School A	School B	School C	TOTALS
MECer	17	6	5	28 (35%)
Non-MECer	16	26	11	53 (65%)
1-5 years	15	18	5	38 (47%)
6-10 years	6	5	9	20 (25%)
11 + years	12	9	2	23 (28%)

Data from the written surveys assisted the research team in forming interview protocols for three focus group interviews (See Appendix B). Three focus group interviews were conducted, one at each of the target schools. The research team interviewed the focus groups in pairs, conducting the interview and taking field notes. Audiotapes were transcribed for data analysis.

Prior to the focus group interview, participants were asked to prepare for the interviews by writing responses to questions that would be discussed during the interview. These written documents (see Appendix C) were collected and formed part of the data set.

Individual interviews of the principals were conducted by members of the research team using the protocol shown in Appendix D. Two of the interviews were audiotaped and transcribed verbatim; one principal was interviewed using only field notes.

The five teacher educators involved at the MEC, including the research team, completed questionnaires. This protocol is shown in Appendix E.

Data Analysis

All data were analyzed collaboratively by the research team.

Surveys were analyzed using ANOVA to ascertain whether there were statistically significant differences between teachers who were initially prepared at the MEC and those who had been prepared elsewhere. Descriptive statistics are reported which feature trends in teachers' responses.

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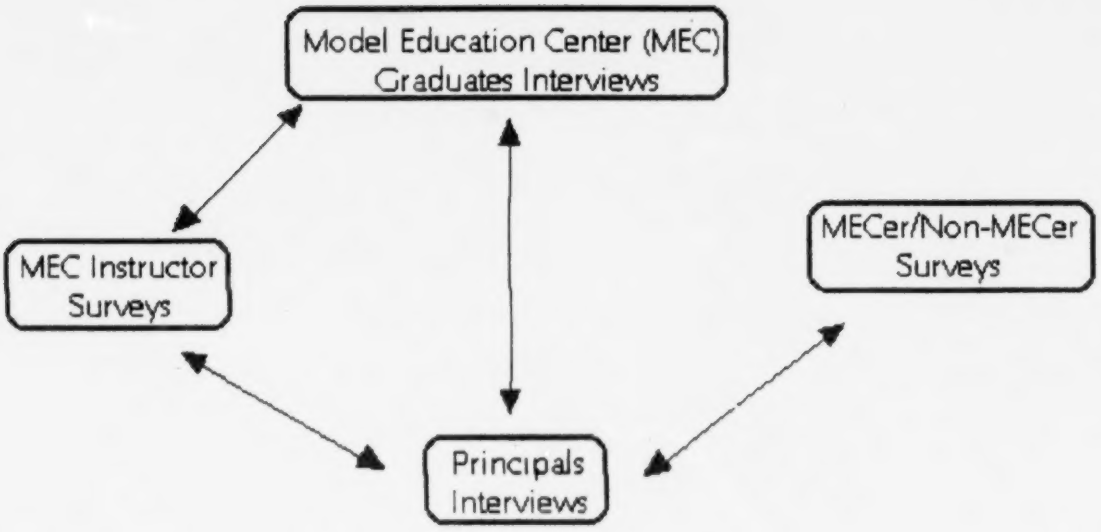
All interviews (except for one principal who declined to be audiotaped) were audiotaped and transcribed verbatim for data analysis. Each member of the research team read the interview transcripts independently and purposively, searching for and indicating instances of the four constructs by highlighting them in various colors. The team then met to collaboratively compare and verify their individual codings. Discussion of data points supporting each of the four constructs led to group consensus on the coding of all focus interview data. For example, if one researcher coded a statement as "continuous learning" and another coded it as "collaboration," a discussion ensued that resulted in researcher consensus of the appropriate coding category.

Focus group participants also provided written data about key constructs under investigation. Researchers coded these documents in the same manner and met to confirm the categories.

Written responses by teacher educators were read and analyzed. The primary purpose of these data was to serve a point of triangulation.

All data were triangulated by the collection of multiple sources of data and multiple methods to confirm the emergent findings (Merriam, 1988). Figure 1 illustrates the data sources used in addressing the research question and the relationship between them.



Data Sources & Triangulation Patterns
Figure 1

Data analysis occurred during an ongoing series of intensive sessions in which the research team utilized a constant-comparative method (Strauss & Corbin, 1990). Data were coded to focus the analysis on the four areas of collaboration, reflective practice, risk-taking, and continuous learning. Initial codings were discussed and statements of relationships among the data were noted. Concepts emerging from the data were used to capture recurring patterns that cut across a preponderance of the evidence. Assertions and arguments were put forth and analyzed through deliberate and systematic critical reflection by the research team. A search for disconfirming evidence was also made.

Findings

The following sections of this paper discuss the findings from our study. We will discuss both (a) school climate and (b) focus group findings.

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School Climate Findings

From teacher survey data (see Appendix F) and principal interviews it becomes apparent that there are many similarities across the three MEC sites. All three principals view the missions of their individual schools as, first and foremost, related to rigorous academic preparation. Their priorities include making their campuses safe and promoting collaborative endeavors. The principals used words/phrases like 'lifelong learning', 'teaming', 'collaboration', and 'cohesiveness' to describe their sites. For example, one principal stated "I think ongoing staff development is really important ... so that they [teachers] know what's expected of kids and they can use the correct instructional strategies instead of just one strategy for every single thing." Their teachers' survey responses supported these types of descriptions of school climates. No significant differences were found across sites in these surveys. One-hundred percent of the teachers agree that their colleagues make school a pleasant place to work. Ninty-four percent agree that discussions with their colleagues are helpful as they attempt to improve their students' learning. Additionally, 94% reported that informal interactions with their colleagues at school are quite valuable.

Principals identified important teacher qualities like strong knowledge, organizational skills, problem solving abilities and being a team player. Their teachers seem to fit these profiles with 85% reporting that they set aside time each week to reflect upon the effective and not-so-effective classroom experiences that took place. Teachers' abilities to collaborate are evidenced by the fact that 90% engage in problem-solving with their colleagues about specific student needs, 84% are involved in special interest collaborations (i.e. technology, subject-matter groups), 90% do much of their curriculum planning in grade level teams, and 70% are involved in some form of team-teaching.

Teachers also demonstrate a commitment to building their professional knowledge/skills with 90% reporting that they find professional development opportunities valuable and 74% having completed or are in pursuit of their Master's Degrees. The MEC Master's Degree program is highly valued by the principals because of its emphasis on state of the art instruction, teaming approaches and university/school linkages.

Generally speaking, both teachers and principals have challenges with time constraints. While principals felt that engaging in reflection was crucial for teachers, they suspected that time for reflection was often minimal. Teachers report that they have time to reflect upon how their instruction went (85%), but 90% of the teachers do not keep journals, and 37% are unable to find time to read professional journals.

Collaboration, professional growth, academic rigor and safety are the primary factors within these three MEC school environments. Has the MEC itself played a role in the establishment and maintenance of this type of school climate? As one of the principals stated, "I think having the university with more research-based ideas ... will have a lot of benefit with students teachers bringing in more state-of-the art."

Focus Group Findings

We examined the data from the focus group interviews in terms of the core beliefs (collaboration, reflective teaching, risk taking, and continuous learning) underlying the MEC program. We found evidence of all four beliefs in the teachers' comments.

Collaboration

The teachers' comments revealed a deep appreciation for the value of collaboration. For example, when asked to identify the *single* most important piece of advice they would give to new teachers, several of them suggested collaboration with other teachers. Specifically, one

teacher offered: "Don't do it by yourself. Ask for help. Find good people and ask them to help you because good people will always help you. And don't block yourself off and think you have to be perfect."

Collaboration for these teachers came in many forms and offered multiple benefits. The most often cited benefits were emotional support and opportunities to gather new ideas. The teachers also identified three main categories of opportunities for collaboration with colleagues: (a) long-term collaborations with individuals, (b) multiple informal interactions in a generally collaborative school environment, and (c) continued collaborations with MEC graduates.

Long-term collaborations.

Some teachers underscored the importance of long-term collaborations such as those that result from team teaching, mentoring (both as the mentor and as the mentee), sharing contracts, and others. For example, one teacher described her team teaching as "really easy and supportive and helpful and we feel really secure to throw ideas off of each other and try things at just a moment's notice." Another teacher recognized that she and her team-teaching partner were a good pair because they complemented each other's strengths and weaknesses. She lamented that her partner was taking a leave of absence:

> She's the very reserved, quiet one. I'm the outgoing, obnoxious one. She's the ultimately - professionally – everything on time. I'm always the one running in at the last second. She's always the one who just looks at me and just gives me the most confidence, as a partner....We teach totally different subject areas, so it's like we just complement each other in a lot of ways and I know that it's going to be very difficult to find another person that complements me in the same ways. I'm going to really have to start bringing up those parts of my personality that I have now put aside because I always counted on her to take care of.

Teachers valued these long-term collaborations because they provided constant sources of emotional support and professional ideas.

Collaborative school environments.

Several teachers underscored the importance of a school environment that was collaborative. This environment allowed teachers to learn constantly from each other:

> I just walk down the halls – the door's open – I go in there. "What are you doing? What does this mean? What are you doing with this? How are the kids? How did you put that together? You know, that's really good – how did the kid do it? Are the students enthusiastic about it?" ... And bringing that back to my classroom and modifying it according to my style of teaching and my personality, and just using people's good ideas from good teaching.

Another teacher specifically recalled that when she first began, she would visit other teachers' classrooms three or four afternoons a week (for 1 –1 1/2 hours each afternoon). "I would look in their room. I would talk their ear off, poor things. And that's how I really learned a lot." This teacher recalled the importance of these informal collaborations after some struggles during her first year of teaching: "I was reassured by others, and by being fortunate enough to work here. We're surrounded by so many other teachers that say 'Oh, here, this will work,' or 'Here, give this a shot.'" Our questions about their collaborative school environments elicited some stories about powerful collaborative experiences that sometimes involved a single observation or discussion:

> I got this K-1 class that was so hard, and I just thought "I can't teach them. I can't teach them." And then I went to observe her (a resource specialist) and my whole light went on. It was the best teaching I have ever seen in my life. She's just amazing, and I was just like, "I could do that. I could do that." And so I just started going.

The teachers credited the principals with setting this tone of collaboration and for encouraging teaming.

MEC Collaborations.

Several teachers mentioned that they felt lucky that many of the teachers at their schools are MEC graduates. They described their MEC cohorts as families, and because a large number of the MEC student teachers are hired in this district, many of the collaborations developed during

the credential program can extend into the first (and later) years of teaching. One teacher who began teaching at a school with three other colleagues from her MEC cohort described the benefits of this continued collaboration:

> That couldn't have been a better set-up because we were all in the MEC together. We got our credentials at the same time, then we all started teaching together . . . And so we were constantly helping each other and crying on each other's shoulders. And there were other people there but we all knew where we had come from and we all had similar backgrounds. It just helped knowing we were all taught the same stuff.

The teachers also recognized that this core belief of collaboration was promoted early and throughout their credential program. One teacher elaborated on the collaborative nature of the MEC program by stating:

> I was so ready to team. That is so much of the MEC things. You do projects and you're working together and everything's group work and ... the minute I got to [the school] ...I was ready. That's the way I wanted to do it from the very beginning. It was never " I want to go to my room and try to do this." It was, "Let me find who I'm going to work with type of thing." I think I got that from the MEC.

Reflective Thinking

Teachers demonstrated their belief in the value of reflection to help them teach more effectively, and they provided evidence of engaging in reflective thinking consistent with Schon's ideas of reflection-on-action and reflection-in-action. One of the most critical components of productive reflection is the asking of good questions. These teachers identified questions that they considered before, during, and after lessons. They also acknowledged that they did not (and should not) expect lessons to run perfectly, and thus, reflection and subsequent revision are natural parts of teaching. For example, when asked to identify the most important piece of advice they would give to new teachers, several of them advised that teachers should expect revision and improvement. Specifically, one teacher explained, "It's OK not to get it

right the first time." Another teacher reminded, "It's not all going to happen in your first year. It's OK it's not all going to happen."

Reflection-on-action.

The teachers described their reflections "on action" both during planning (before a lesson) and during evaluation (after a lesson). For example, this teacher highlighted questions that she posed to herself when planning a lesson:

> I know I try to look at a lesson like "OK, if I give them this, what could go wrong? Could they misunderstand this? Could they misunderstand that?" And I also try to think how many different ways can I explain this just in case child A, B, and C doesn't get it. And sometimes you need twenty different ways for twenty different children. What if I bring in colored pencils? What if I did it on the board? What if I gave them some manipulatives? What if they got to work on scratch paper? What if they got to work with a partner instead? How many different avenues do I have to go down if they get lost?

While these types of questions are intended to identify (and solve) problems before they occur, the teachers also recognized that this process was not foolproof. Thus, it was also essential to reflect after a lesson, especially after a lesson that was problematic:

> You have to reflect on what went wrong and why. Were you not prepared? Did you not have the materials out, and while you had your back turned digging in the cupboard, were the kids swinging from the chandeliers? Was it your fault? Was the material over their heads? Was the way you presented it wrong? Was the worksheet too overwhelming? What was it about the lesson that went wrong? Was it a management thing or was it a curriculum thing? And once you pinpoint that, then it's easy to fix.

Consistent with the collaborative school environments described above, these post-lesson reflections were also done in collaboration with other teachers, both informally and during problem-solving curriculum meetings (schoolwide? By grade level?).

> When you go in and have lunch or something like that, you don't always just come in and go "Oh, my class was so wonderful and this and this and this." You can go, "Oh, my gosh, I just taught the worst lesson," and everyone will go, "Oh, what happened?" And you can snicker about it and feel OK about it. People will say, "Why don't you try this?" or "Why don't you try that?" You know, problem-solving curriculum meetings are that – where we bring good ideas and flopped ideas to try to help each other out. A few flops? So what? You know, tomorrow's another day.

Reflection-in-action.

Several teachers also talked persuasively about their abilities to reflect "in action" (i.e., in the middle of a lesson). One teacher described the importance of constantly asking "Is it working?" and "Is this really where I want to be?" She also recognized the need to be willing to "say when it's not and we need to do something." This last point is critical. Many teachers told stories about specific lessons in which they recognized – in the middle of the lesson – that things were not going well, and they then had the confidence to stop the lesson and regroup at a later time. For example, one teacher described a place value lesson that went awry, and she said to the students: "OK, we need to stop now. You know what? It's not your fault. I did not prepare you. We're stopping right here. Let's do something else." This teacher continued her story by explaining that two months later, she re-taught the lesson successfully when the students were better prepared.

The teachers recognized that this core belief of reflective thinking was encouraged throughout their credential program: "When you're a student teacher, you're constantly asked to reflect on everything that you do. That's a favorite of Marlowe's. Reflect on everything." One teacher even recalled that she initially got the idea of reflecting during a lesson (and potentially stopping it) during her credential program in a class discussion about what you do when a lesson flops:

> And when the kids are all going off thirty different directions and you've totally lost control, that's when it's OK – and we were told it's OK – to stop and go "OK, let's not go any further." And I remember it being presented as "Why torture yourself? Whey torture the kids? So what if it didn't work. Just be sure to, at the end of the day, figure out why it didn't work. And then redo it. Just don't do the same thing again." So, I felt like I was given permission to stop in the middle of a lesson.

Risk-Taking

The teachers described a variety of instructional decisions that could be considered risk-taking because they were uncertain and perhaps a little apprehensive about the outcome. Without exception, the teachers said that they took these risks to improve their teaching and better support student learning. During these focus group interviews, the teachers only shared stories that they felt were worthwhile risks. In other words, in retrospect, they felt good about their decisions even if getting to that point had involved some uncomfortable or uncertain moments.

Decisions were considered risks for a variety of reasons such as challenging policy, the norm (i.e., what everyone else was doing), and/or personally comfortable teaching habits. In addition, the processes of collaboration and reflection described above both have inherent risks. For example, in order to ask for help and/or be willing to critically examine their own teaching, teachers must admit that they do not have all the answers and thus risk feeling and looking incompetent.

Challenging policy.

Teachers talked about the challenge of using their own professional judgment to make decisions that were in conflict with district policy. Sometimes teachers had the support of their principal when making these decisions while other times they did not. For example, one teacher took a risk in her curriculum, a risk she admitted she would not have taken before tenure. She chose to challenge a district-wide policy that prohibited student work with incorrect spelling from being displayed on classroom walls. This teacher had participated in a professional development program in which she had been encouraged to help children focus on creativity

rather than spelling and grammar. Thus she discussed the issue with her principal and was supported in her efforts to try a different approach:

> I can put up what is considered "messy work" because I label it "Our Work in Progress" -- so it doesn't have to be spelled correctly. And I'm kind of pushing that envelope a little bit, and I think it's OK because I believe I'm getting more creative work out of my students and that's kind of the focus.

Another teacher took a risk in her curriculum without strong principal support. While the district encouraged a whole language approach that did not include any phonics instruction, this teacher argued and eventually gained district (but not principal) support for integrating phonics into her teaching. She acknowledged that she feels that "it's helped everybody. But it was not fun to go against the principal, or to make a demand that was not well accepted."

Challenging the norm.

The teachers talked about taking risks by making decisions that went against what their colleagues were doing and/or textbook guidelines. For example, one teacher explained: "I didn't buy into the same math program as all the other third-grade teachers....I think it's a risk not to go with what everyone else is doing when you're comfortable with what you have for yourself." Especially given the collaborative nature of these schools, teachers talked about the difficulty of making decisions that were different than those of their teammates. Another teacher described how her increased confidence and willingness to take risks has allowed her to change *how* she uses curriculum materials:

> I don't feel really strong in math. I never really have – as a child and now as a teacher, the way I teach it. But I don't feel the need to go by the book, chapter by chapter by chapter. I feel more like I go by what they need and when. . . . I use my own judgment rather than the textbook author. And it's going better every year for me trying that.

Challenging personally comfortable teaching habits.

While some activities or decisions would be considered risky by all teachers (e.g., challenging a principal), other risks are more personal. For example, one teacher claimed that the biggest risk she ever took was incorporating "touch math[1]" into her mathematics instruction because it was different than the way *she* was taught. Another teacher who liked things "really neat and clean" felt it was risky to use lots of manipulatives:

> I find taking [risks] for me is using a lot of manipulatives that need monitoring, and to allow the students to be able to manage themselves. And I think I've gotten it down... so I can have all these manipulatives all over the room for students to handle and actually have them do some learning and not be focused on all this stuff to manage. And to me, that's taking a risk because sometimes I want things really neat and clean and easy to do and it's a nice little box. You cover it up and "Here you go. Here's your lesson."

Although other teachers may not see the risk in manipulative use, manipulatives are still a risk for *this* teacher because risk-taking depends on the perception of the individual involved.

Some of the teachers credited their principal with creating an environment that encouraged risk-taking and decision-making. For example, they compared their site's ability to make their own decisions about how to use a mathematics curriculum while other schools they knew were required to follow the curriculum exactly as it was written. In addition to being given permission to be flexible, these teachers felt well-supported by their principal:

> We feel so confident to make these decisions because we have ... this most amazing principal who comes in and finds a million good things to tell you about what you're doing, about how you're teaching and maybe one thing to maybe work on: "Here's an idea."

[1] In touch math, each numeral has a certain number of places that a student touches. The number of touch points corresponds to the quantity that the numeral represents. Thus students can use the actual written numeral similar to how they might use manipulatives.

Continuous Learning

The teachers revealed dispositions that supported continuous learning by describing examples of how they had changed throughout their teaching careers. Some of the stories reflected growth in their general comfort level with the job:

> I'm so much more relaxed. It just flows. And my first year, I remember everything was planned out so much. The kids would be sitting there and I'd be like, "OK, hold on." And I'd go check and see what I'd written down and I'd send a note to [another teacher] just to make sure that everything was perfect, and now it's just that I have so much fun during the day and ...it feels just natural now.

This increased comfort level was also seen by teachers being more willing to try new things without worrying about whether the lesson would be perfect: "I'm learning to be more creative and confident in my teaching. And taking risks. I'm feeling like, 'Hey, I'll give this a try. OK, so what if it flops? They [the students] don't know. I'll just move on.'"

Other stories reflected specific changes in instructional practices such as more small group work or more direct teaching for particular topics. This growth in instructional strategies allowed teachers to be more effective during reflection:

> When I reflect back, being a newer teacher, I may know something didn't go right. I may not have the solutions of how to fix it. I just know it wasn't right. Where now, with more experience, you know it wasn't right and you have more ideas of how to fix it, so just with experience – it's not that you didn't know it was wrong in the beginning, it's just that now we just know more solutions of how to fix it.

Finally, teachers also shared how their conception of their role in the classroom had evolved:

> I think my first year of teaching I wanted to be the one like "Ask me all the questions. I'm in charge, blah blah blah." Now I'm like, "OK, as much as you can do without me ever having to..." or "Be a problem solver," or "Do it yourself," or "Talk among your friends."

As teachers described what they had changed over time, they identified many types of experiences that helped them grow. The processes described above, collaboration, reflection, and risk taking, all provided learning opportunities for these teachers. However, the teachers

also felt that they learned from other experiences such as exploring resources (e.g., books, internet), having student teachers, and listening to their children. Many of them again credited their principals for creating environments in which continuous learning is valued but encouraged at a pace that is not too overwhelming:

> [The principal] totally understands what it's like at first and does not heap the stuff on. And then the more you teach, the more is heaped on. . . . So I think the fact that we feel more comfortable and stuff like that has a lot to do with her not heaping a lot on us initially.

Exploring Resources.

Teachers explained that they often went to other resources when they were struggling with issues. Most often, this resource was another person. However, teachers also mentioned other resources such as books or the Internet. For example, as one teacher explained, "I've even been known to go to different books." She also described *how* she used these books. "Most of the time I don't like to copy a lesson plan that already exists, just because often I find them dull. But sometimes they come at it in a way I wasn't expecting and that's enough." Another teacher described her success with the Internet, and she was particularly proud of this success because she was a novice in using this tool:

> I've gotten on the Internet and found some information on poetry. I'm really getting into writing because that's one area there's not a real manual for, or teacher edition book. And as wonderful as my kids are doing, it shocks me because I'm still feeling way out in left field when I'm trying to teach it. And so I got on the Internet – I like poetry a lot – and I'm finding poetry....*It's incredible. And so I found on the Internet, there was a teacher who had* some poetry stuff, and I went "Oooh click" and downloaded it and put it right into my lessons.

Having Student Teachers.

Several of the teachers had served as master teachers and they felt that they had benefited from the experience:

> I constantly feel that my cup is being refilled by having the student teachers in there, because they bring all the new stuff in that maybe I haven't noticed or I don't know how to use and I steal just as much from them as they steal from me going through the class And I love that.

Two of the teachers had just recently become master teachers and they were surprised that the student teachers pushed them to reflect more: "We are really watching what we're doing, thinking things through again a lot more . . . and they're [the student teachers] are very questioning. "Why are you doing that and this and this?" The student teachers also helped these master teachers recognize what they already knew:

> I'm always surprised ... that I can be in the middle of a lesson like [my master teacher] used to do and look up and explain what I'm doing – that I really do know the reason why I'm doing this at the moment. And I don't think I really did know that I knew what I was doing as well as I do -- which is good.

Listening to Children.

Several of the teachers pointed to their children as a source for continued learning. One teacher underscored the importance of changing your skills, techniques and presentation "based on the make-up of your class." Another teacher advised that teachers learn the most when they *really* listen to their children.

> Listen to the children ... They teach you every day to be a better teacher. ... You have to step aside from the position of "I am in charge, I know it all, I'm the one who knows," and listen to what they say because very often what they say is better – or at least a different way of thinking about it. And they're expressing their needs and maybe you need to adjust your teaching to fit their needs. And if you just go in thinking that I've go it all planned out and it's going to be this way and don't bother me, well, then you're going to fail. But if you are willing to step back and say, "I'm learning too," the students will teach you and it will be better for everybody.

In all of these examples, the teachers have shown both a disposition to continue learning and the knowledge of how to do so. Some of the teachers linked this capability to their experiences at the MEC. They identified several ways that they felt teachers who have graduated from the MEC are more professional than those graduating from other programs. Perhaps one of the most

important differences is that these graduates felt that they have the tools to continue learning throughout their careers:

> We don't gripe and complain as much because we know where to go for the answers, and the answers aren't in whining and griping and complaining. We say, "Oh, this didn't go right. Can you believe this?" And, you know, you move on and we go on. We have this bag of tricks with us.

Discussion and Recommendations

Longitudinal data surrounding professional development schools are sparse, and this study provides information about a *fifteen-year-old* professional development school. The MEC was designed to promote the core beliefs of collaboration, reflective thinking, risk taking, and continuous learning, and these core beliefs were collaboratively determined by San Diego State University and the Cajon Valley School District. This study found that, fifteen years later, the core beliefs were still reflected in the school climates of the Cajon Valley schools that are affiliated with the MEC. Specifically, interview data collected from the site principals revealed a commitment to the constructs that support the program The study also found that a cross-section of MEC graduates teaching in these Cajon Valley schools showed evidence of these core beliefs.

While a causal connection is certainly premature, the wealth of examples provided by the teachers suggests that these core beliefs are as much a part of their professional teaching lives (even 15 years later) as they were during their teacher training program. The findings from this study provide hope that the core beliefs underlying professional development schools can have an effect on its graduates. They also suggest that there may be long-term advantages to having professional development schools based on beliefs or principles rather than tied to a dynamic individual(s).

Some speculation on why greater differences between graduates of the professional development center and non-graduates did not surface seems to be warranted at this juncture. Since there is evidence that a commitment to the core concepts of the program exists throughout the MEC schools, it may very well be that this steadfastness reflects an influence not only on students in the program but on all of the teachers who are affiliated with the program. There is also the possibility that core beliefs may be able to serve as a point of common commitment for stakeholders in a professional development school as the collaboration matures and new endeavors are undertaken. Nevertheless, it would seem that a deeper and more sensitive study to tease out differences could prove fruitful if research in the field of developing effective professional development schools is to examine the impact of the program on students who learn to teach in these centers.

The encouraging findings from this study have also helped the authors reflect further on the existing and potential influences of professional development schools. Specifically, we have identified two critical questions:

- Is it always beneficial to have a consistency of beliefs among individuals and institutions involved with professional development schools? Or, could this common set of beliefs cause both the school district and the professional development school to overlook new ideas and practices and thus simply preserve the status quo?
- Do the core beliefs of collaboration, reflective thinking, risk taking, and continuous learning link to improved student learning in grades K-6? If they are linked, how can we demonstrate this connection most effectively? If they are not linked, what are the implications for professional development schools designed around these reform principles?

While the current study cannot provide answers to these questions, we recognize their importance and challenge others to join us in exploring these critical issues.

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APPENDIX A: EXPERIENCED TEACHER SURVEY

Dear Colleague,

Please take a few minutes to respond to the questions and statements below. Your thoughtful responses are greatly appreciated. Thank you.

1. Year I became a credentialed teacher _____
2. Number of total years I have been teaching _____
3. Number of different schools in which I have taught _____
4. I received my K-8 credential through SDSU's Model Education Center (MEC) ____ ____ (yes / no)
5. I received my teaching credential at (if not at the MEC) _____ (institution).

Please circle your level of agreement with the statements below:

1 strongly agree **2 agree** **3 not sure** **4 disagree** **5 strongly disagree**

	Statement	strongly agree	agree	not sure	disagree	strongly disagree
6.	By and large, I find my colleagues make school a pleasant place to work. [T]	1	2	3	4	5
7.	I find that my teaching methods have changed over time more than they have stayed the same. [LLL]	1	2	3	4	5
8.	I try a new teaching technique at least once a week in my classroom. [RT]	1	2	3	4	5
9.	I keep a journal of my thoughts about the teaching I do. [R]	1	2	3	4	5
10.	I set aside time each week to stop and think about the effective and not-so-effective classroom experiences that took place. [R]	1	2	3	4	5
11.	Seldom do I find the opportunity to ask colleagues for advice about teaching. [T]	1	2	3	4	5
12.	I feel well-qualified to help my students become technologically literate. [LLL]	1	2	3	4	5
13.	Sometimes I am hesitant to seek feedback on areas in which I need professional improvement. [RT]	1	2	3	4	5
14.	Seldom do I have time to really reflect upon how a lesson went or ways I might change it. [R]	1	2	3	4	5
15.	I am usually willing to try something new in my classroom to see if it will work. [RT]	1	2	3	4	5
16.	Seldom do I find the time to read professional journals.					
17.	By and large, I find discussions with my colleagues helpful in improving my students' learning. [T]	1	2	3	4	5

Think carefully about the learning opportunities below. In your own teaching experience to date, how valuable have each of these experiences been for you?

Please circle the number that best represent how valuable each has been for you up to this point in your teaching career.

1 very valuable **2 often valuable** **3 not sure** **4 seldom valuable** **5 never valuable** **6 N/A - not applicable**

	Statement	always valuable	usually valuable	not sure	seldom valuable	never valuable	N/A
18.	• interacting informally with your colleagues at school	1	2	3	4	5	6
19.	• professional networks (outside school)	1	2	3	4	5	6
20.	• teaching a lesson	1	2	3	4	5	6
21.	• professional development opportunities (conferences, workshops, etc.)	1	2	3	4	5	6
22.	• listening to your students	1	2	3	4	5	6
23.	• resources (books, articles, etc.)	1	2	3	4	5	6
24.	• serving as a Master Teacher	1	2	3	4	5	6
25.	• pursuing/completing a MA program	1	2	3	4	5	6
26.	• receiving grants/mini-grant to improve teaching	1	2	3	4	5	6

For items **27-31**: How valuable are these, more formal interactions with colleagues?

27.	• grade level curriculum planning	1	2	3	4	5	6
28.	• cross-grade level curriculum planning	1	2	3	4	5	6
29.	• problem-solving about specific student needs	1	2	3	4	5	6
30.	• special interest collaborations (i.e. technology, subject-matter groups)	1	2	3	4	5	6
31.	• team-teaching (crossing over classrooms to teach subject-matter specialties to one another's students)	1	2	3	4	5	6

32. What is the most important thing you remember about your teacher credential program?

APPENDIX B: FOCUS GROUP QUESTIONS

(Questions with written answers are in italics)

1. Think about the MEC and your teacher preparation program. What stands out about this experience? (Link to MEC program)

- What did you feel most prepared to do?
- What did you feel least prepared to do? (What was the hardest thing to do?)

2. Name one way that your teaching has changed over the past few years? (LLL)

- What has helped you to change?
- How do you find new ideas to try in your teaching?

3. Think of the colleague who has influenced your teaching the most. Why has this person had such an influence? (T)

- Why are good colleagues valuable?

4. Think of a lesson that went poorly (we all have them!). What would you do to make sure that it didn't happen again? (R)

- In general, what do you consider when you plan your lessons?

5. Name one risk you have taken in teaching. (RT)

- Why did you consider it a risk?
- What makes something a risk in teaching?

Concluding Question:

Name your single most important piece of advice for new teachers.

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APPENDIX C: PREPARATION FOR THE FOCUS GROUP DISCUSSIONS

Dear Colleague,

Thank you for agreeing to participate in our focus group discussions. We are excited about the upcoming discussions and wanted to give you a chance to think about some of the issues we will address.

Please take a few minutes to respond to the questions below. We will use your written responses as a starting point for our focus group discussions. **Please bring your written responses with you to the focus group meeting.**

Your thoughtful responses are greatly appreciated! Thank you!

1. Think about the MEC and your teacher preparation program. What stands out about this experience?

2. Name one way that your teaching has changed over the past few years.

3. Think of the colleague who has influenced your teaching the most. Why has this person had such an influence?

4. Think of a lesson that went poorly (we all have them!). What would you do to make sure that it didn't happen again?

5. Name one risk you have taken in teaching.

APPENDIX D: PRINCIPAL INTERVIEW

1. How do you visualize the mission of the school?

2. If you were going to describe your school to someone from another state, what 5 words would you use? Why?

3. What 5 qualities would you look for in the ideal teacher? Why?

4. What professional growth opportunities do you believe are most important for your teachers? Why?

5. In your opinion, what has been the biggest risk your school has taken in the last 3 years?

Follow Ups:

What do you see as some benefits/challenges of the university/school partnership? (R, RT, LL, T)

What are the responsibilities of teachers to one another? (T, R, LL)

Of what value is reflection in teaching? Can a principal support/encourage teacher reflection? In what ways? (R)

APPENDIX E: REFLECTIONS ON THE MEC BY UNIVERSITY TEACHER EDUCATORS

Reflections on the MEC

Questions:

1. Thinking about the MEC as an instructor, what stands out about this teacher preparation program?

2. Describe your perception of the MEC as a possible influence on your teaching.

3. Name one way your teaching has changed during your involvement with the MEC.

4. Name one risk that you have taken as an instructor.

5. Other comments?

APPENDIX F: EXPERIENCED TEACHER SURVEY RESULTS

1. Year I became a credentialed teacher _____
2. Number of total years I have been teaching 1-5 (47%) 6-10 (37%) 11 or more (16%)
3. Number of different schools in which I have taught 1 (50%) 2-4 (36%) 5 or more (14%)
4. I received my K-8 credential through SDSU's Model Education Center (MEC) 35% 65%
   yes no
5. I received my teaching credential at (if not at the MEC) _____.
   institution

Please circle your level of agreement with the statements below:

1	2	3	4	5
strongly agree	agree	not sure	disagree	strongly disagree

Statement	strongly agree		agree		not sure		disagree		strongly disagree	
6. By and large, I find my colleagues make school a pleasant place to work. [T]	72%		28%		-		-		-	
	71	73	29	27	-	-	-	-	-	-
7. I find that my teaching methods have changed over time more than they have stayed the same. (LLL)	45%		48%		4%		-		3%	
	40	49	53	44	7	4	-	-	-	3
8. I try a new teaching technique at least once a week in my classroom. [RT]	15%		44%		23%		16%		2%	
	18	13	43	44	25	21	14	19	1	3
9. I keep a journal of my thoughts about the teaching I do. [R]	1%		9%		15%		42%		33%	
	4	-	4	12	18	14	43	41	30	33
10. I set aside time each week to stop and think about the effective and not-so-effective classroom experiences that took place. [R]	31%		54%		8%		6%		1%	
	32	30	61	51	4	9	4	8	-	1
11. Seldom do I find the opportunity to ask colleagues for advice about teaching. [T]	2%		6%		3%		45%		44%	
	-	3	7	6	-	4	36	50	57	38
12.* I feel well-qualified to help my students become technologically literate. [LLL]	17%		38%		23%		15%		7%	
	23	13	25	46	25	22	28	7	1	9
13.* Sometimes I am hesitant to seek feedback on areas in which I need professional improvement. [RT]	2%		6%		6%		58%		28%	
	4	-	4	8	3	6	46	64	43	23
14. Seldom do I have time to really reflect upon how a lesson went or ways I might change it. [R]	2%		7%		6%		61%		24%	
	-	4	4	9	4	8	64	58	28	21
15. I am usually willing to try something new in my classroom to see if it will work. [RT]	59%		38%		1%		1%		-	
	57	60	43	36	-	2	2	-	-	-
16. Seldom do I find the time to read professional journals.	12%		51%		9%		24%		4%	
	11	12	46	53	14	6	25	22	4	4
17. By and large, I find discussions with my colleagues helpful in improving my students' learning. [T]	58%		36%		1%		2%		3%	
	68	52	29	40	-	2	-	4	4	2

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Think carefully about the learning opportunities below. In your own teaching experience to date, how valuable have each of these experiences been for you?

Please circle the number that best represent how valuable each has been for you up to this point in your teaching career.

1 very valuable 2 often valuable 3 not sure 4 seldom valuable 5 never valuable 6 N/A - not applicable

Statement	always valuable		usually valuable		not sure		seldom valuable		never valuable		N/A	
18. • interacting informally with your colleagues at school	61%		33%		5%		1%		-		-	
	71	55	29	37	-	6	-	2	-	-	-	-
19. • professional networks (outside school)	22%		49%		18%		9%		-		2%	
	14	26	64	40	11	22	11	8	-	-	-	3
20. • teaching a lesson	70%		25%		4%		1%		-		-	
	68	72	25	24	4	4	4	-	-	-	-	-
21. • professional development opportunities (conferences, workshops, etc.)	26%		64%		6%		4%		-		-	
	32	24	61	67	4	6	4	4	-	-	-	-
22. • listening to your students	81%		19%		-		-		-		-	
	93	75	7	25	-	-	-	-	-	-	-	-
23. • resources (books, articles, etc.)	31%		60%		6%		3%		-		-	
	25	36	71	53	4	8	-	4	-	-	-	-
24. • serving as a Master Teacher	29%		35%		11%		1%		3%		21%	
	21	33	36	35	18	8	-	2	4	-	21	22
25. • pursuing/completing a MA program	50%		24%		11%		2%		-		13%	
	46	52	25	24	18	8	4	-	-	-	7	16
26. • receiving grants/mini-grant to improve teaching	36%		24%		17%		4%		-		19%	
	50	29	14	27	18	16	1	4	-	-	14	22

For items 27-31: How valuable are these, more formal interactions with colleagues?

27. • grade level curriculum planning	57%		33%		4%		3%		-		3%	
	54	61	39	31	4	4	4	-	-	-	-	4
28. • cross-grade level curriculum planning	27%		33%		24%		5%		1%		10%	
	18	31	36	31	29	22	7	4	-	2	2	2
29. • problem-solving about specific student needs	61%		29%		2%		6%		2%		-	
	61	62	32	27	-	4	7	6	-	2	-	-
30. • special interest collaborations (i.e. technology, subject-matter groups)	33%		51%		11%		3%		-		2%	
	36	31	50	51	11	12	4	2	-	-	-	4
31. • team-teaching (crossing over classrooms to teach subject-matter specialties to one another's students)	35%		35%		14%		5%		1%		10%	
	36	35	29	39	18	12	4	6	4	-	13	8

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